



2019

Asian Carp Project – Infographics & Megamap™

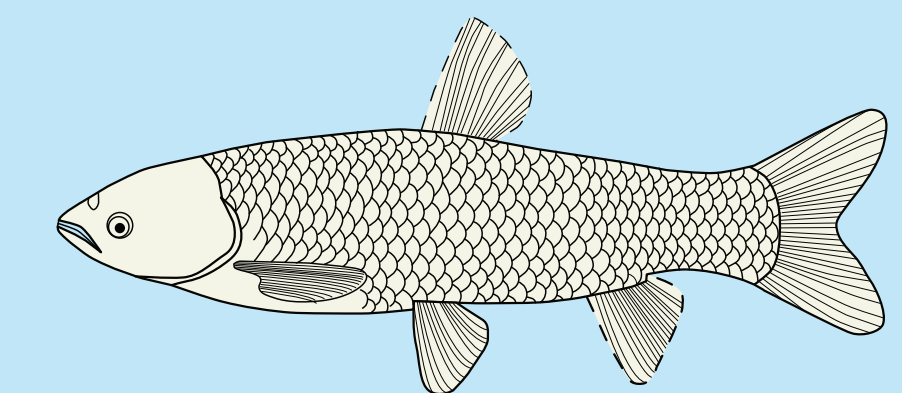
Harfoush, Nabil and Abdallah, Merwad and Gao, Lucy

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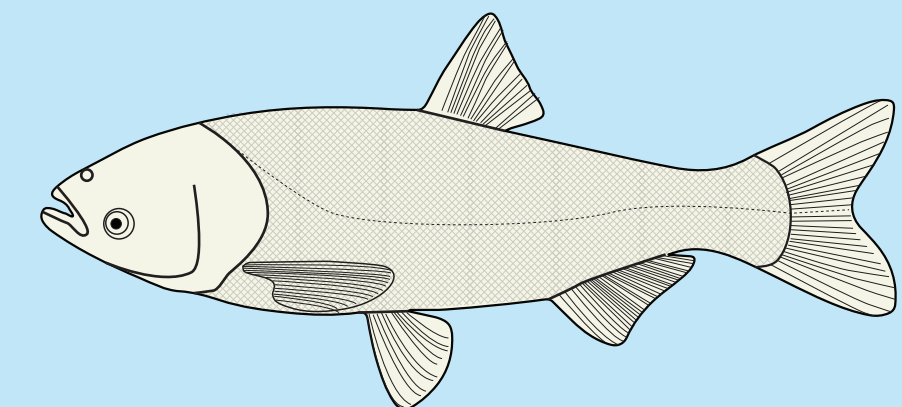
The Asian Carp Species

All four species known collectively as Asian carps originated in major river systems in China and Russia. During the early 1970s, aquaculture managers in the southern United States imported them for biological control in their ponds. Subsequent flooding events allowed the species to escape and enter the Mississippi River system. Finding themselves in an ideal habitat free of any natural predators, Asian carps have been able to spread, reaching as far northward as the Illinois River watershed and Ohio in just 20 years.



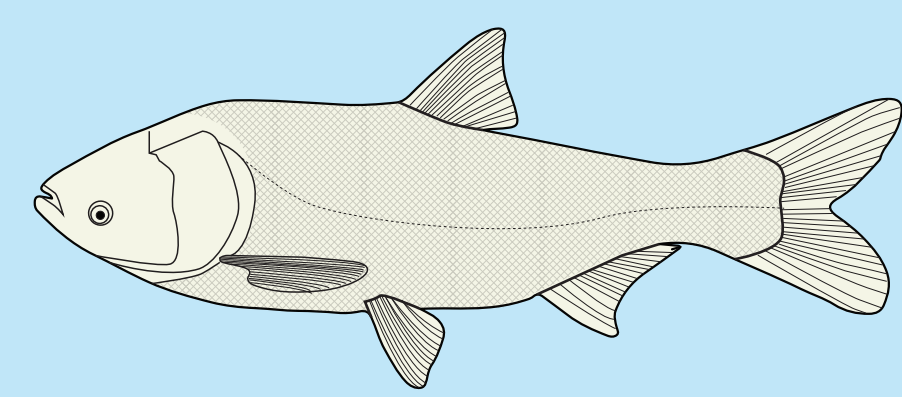
GRASS CARP

Grass Carp eat aquatic plants, often uprooting large, productive wetlands which can lead to poorer water quality. Individuals can grow to 45 kg and live up to 11 years.



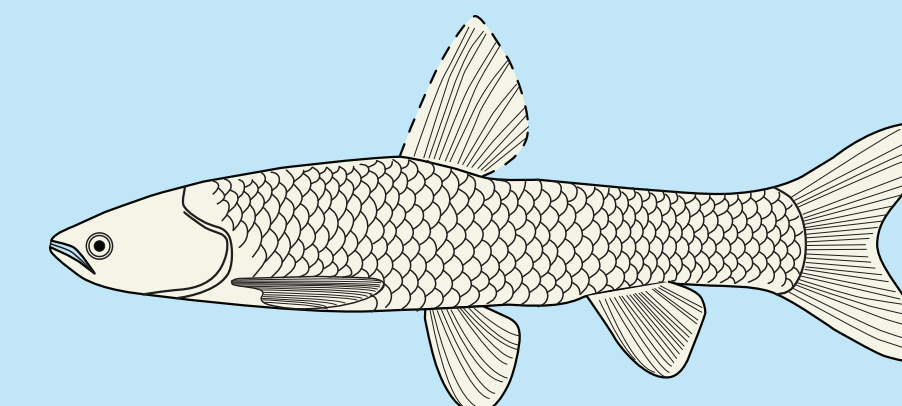
BIGHEAD CARP

Bighead Carp eat microscopic animals. Individuals can grow to more than 40 kg and live up to 16 years.



SILVER CARP

Silver Carp is best known for leaping as high as three metres above the water surface. They eat microscopic plants. Individuals can grow to more than 40 kg and live up to 20 years.



BLACK CARP

Adult Black Carp feed on small molluscs while juveniles feed on microscopic plants and animals. Black Carp is the largest of the four species and can grow to 70 kg and live up to 15 years.

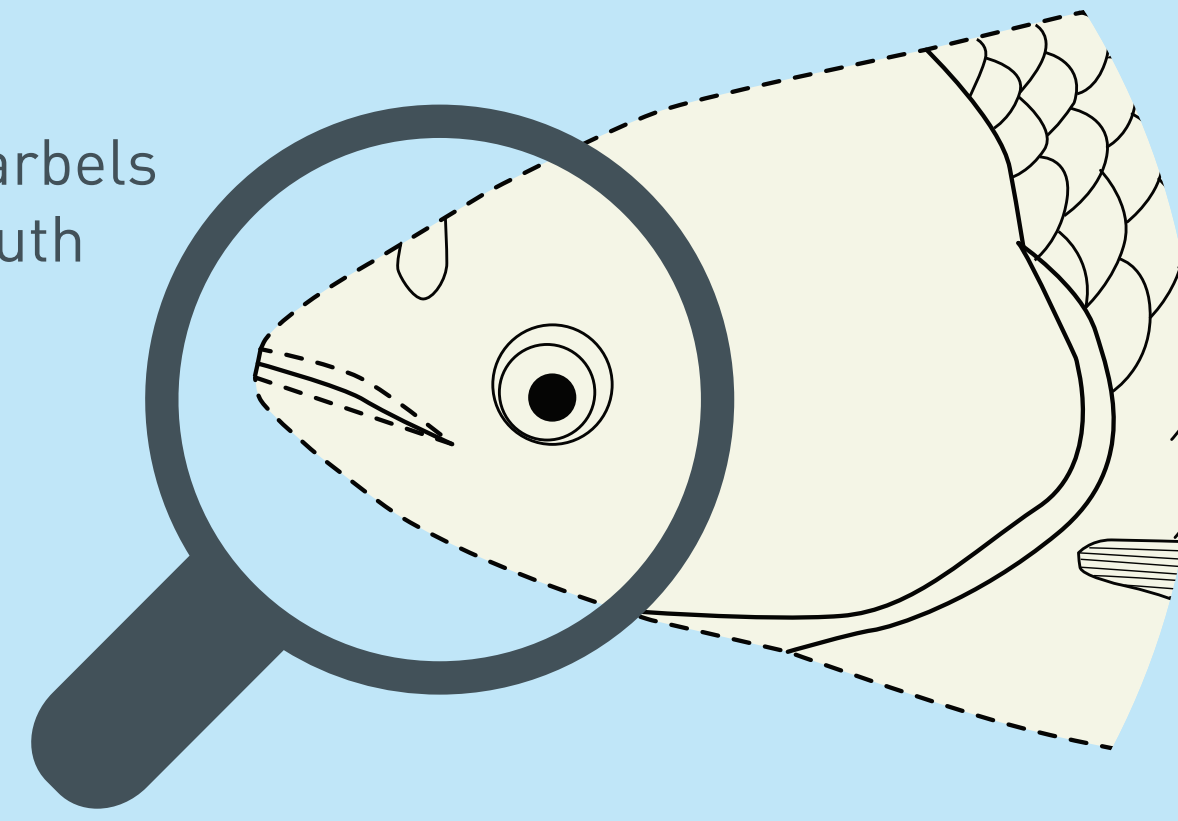
Here are some ways a Grass Carp could enter our Great Lakes



Identifying a Grass Carp

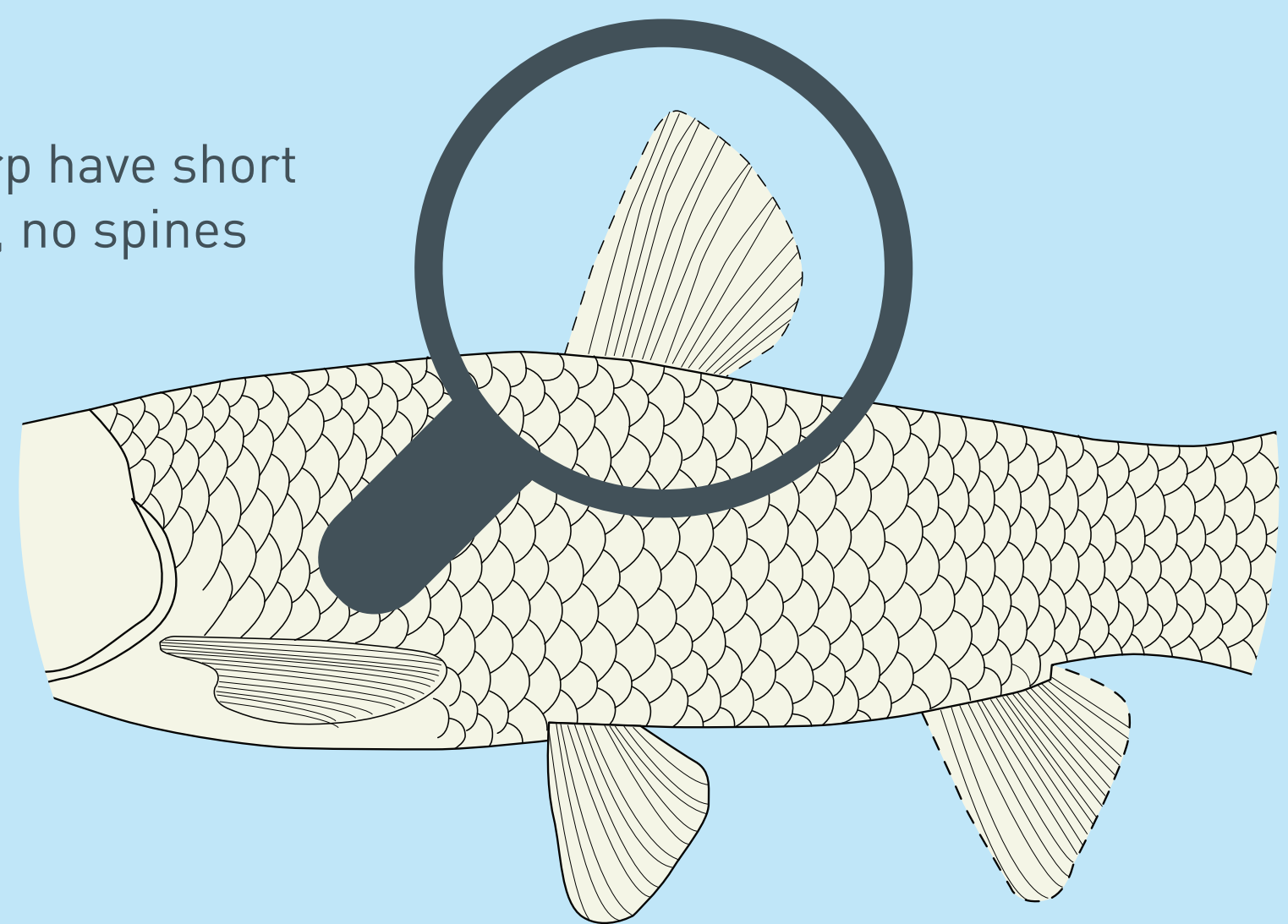
1 EXAMINE THE MOUTH

Grass Carp have no barbels (whiskers) around mouth
Eye level with mouth



2 LOOK AT THE FIN ON ITS BACK (DORSAL FIN)

Grass Carp have short dorsal fin, no spines

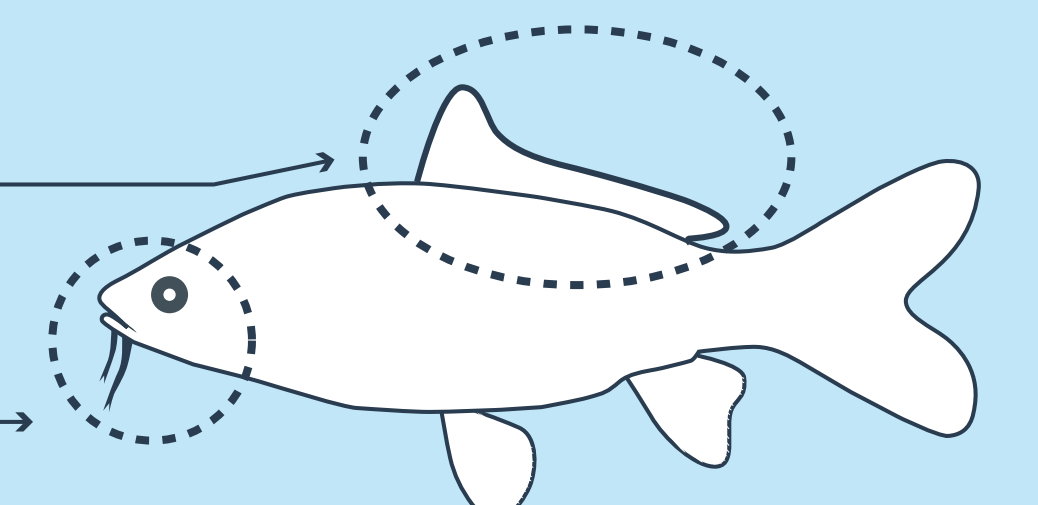


3 DON'T CONFUSE IT WITH:

Common Carp

elongated dorsal fin

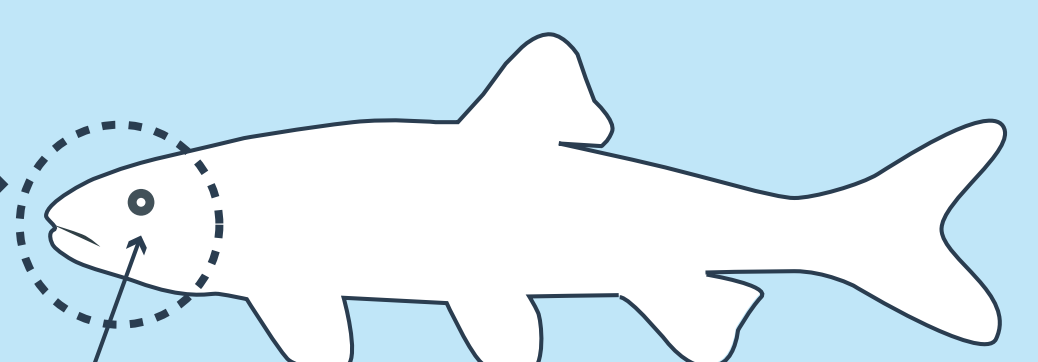
barbels (whiskers) around mouth



Fallfish

broad head

eye above mouth



GRASS CARP ALERT

THE THREAT LURKING IN OUR WATERS

Asian carps pose a significant threat to the ecosystem and economy of the Great Lakes. The Government of Canada, recognizing this risk, developed the Asian Carp Program in 2012 under Fisheries and Oceans Canada (DFO). Out of the four Asian carp species, Grass Carp has been identified as the most imminent threat to Canadian waters of the Great Lakes ecosystem.

The Medicine Wheel represents a balance between all ecosystem elements including waters, fisheries, land and people, which are able to exist together in harmony. The introduction of Grass Carp into the Great Lakes ecosystem threatens this balance and would further degrade the natural environment and the quality of life of those that depend on it.

20 FISH COULD TAKE OVER THE GREAT LAKES

GROWS TO >1m LONG

EATS UP TO 40% ITS WEIGHT

GAINS 1 KG/MO

HEALTH OF THE FISHERIES

HEALTH OF THE WATERS

HEALTH OF THE LAND

HEALTH OF THE PEOPLE

increases algae blooms
Grass Carp disrupt the biology of the water and can cause the growth of cladophora mats, a green algae with a noxious odour, to form along the shoreline.

reduces vegetation and fish & birds habitats
When Grass Carp grow in number and size, they can cause nearly complete removal of aquatic plants that are critical for the survival of native fishes and birds, as well as shoreline protection.

increases water murkiness
Grass Carp disturb lake and river bottoms, making water murkier. This makes it more difficult for other fishes to find food.

ECONOMIC IMPACTS

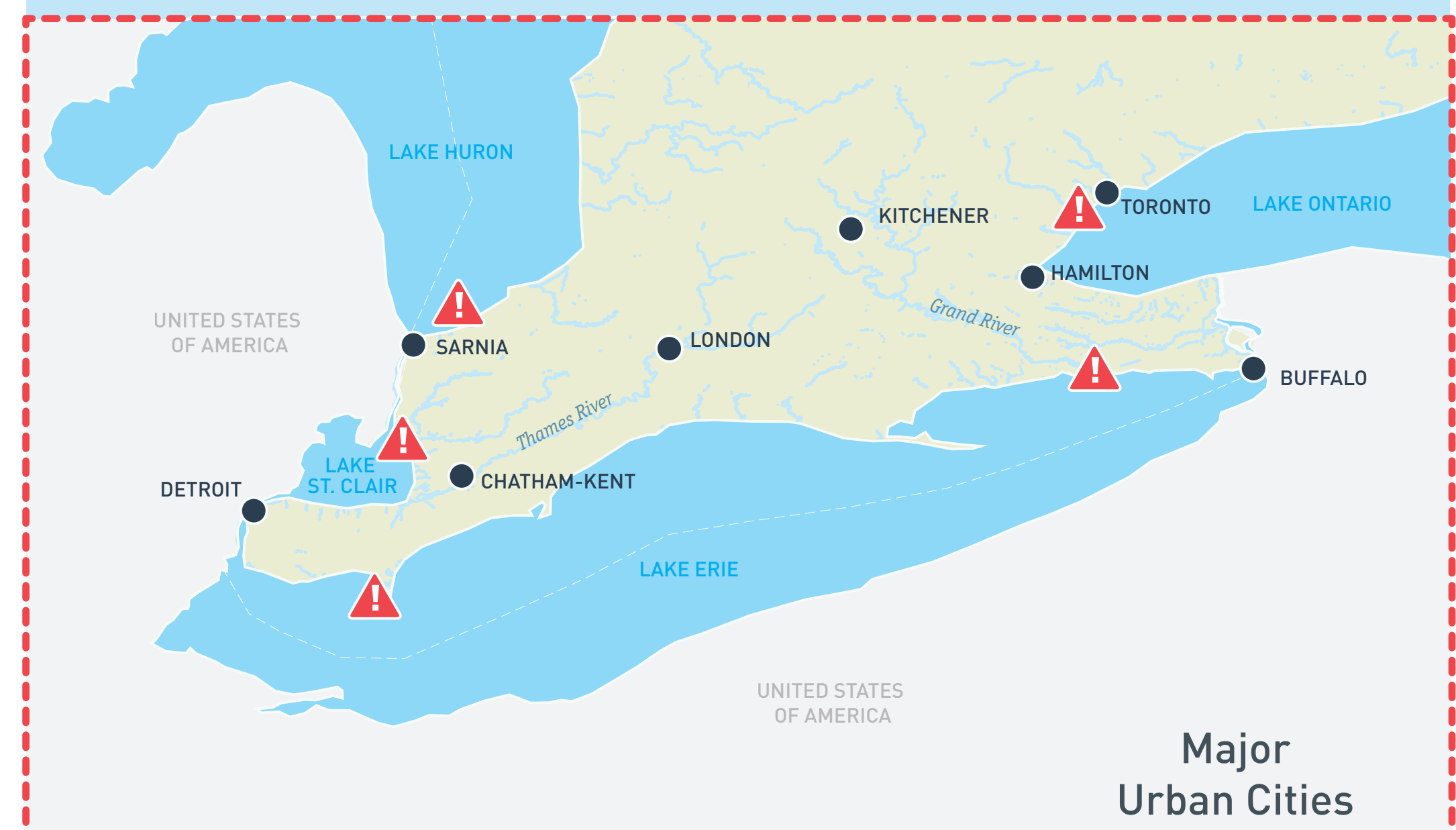
Commercial Fishing + Recreational Fishing + Recreational Boating + Wildlife Viewing + Beach & Waterfront Use = **LOSS OF \$13 BILLION GENERATED ANNUALLY FROM THE GREAT LAKES BASIN**

QUALITY OF LIFE IMPACTS

Increased challenge to stewardship + Increasing water purification costs + Decreasing water quality + Decreased medicine & food harvesting + Decreased subsistence fishing

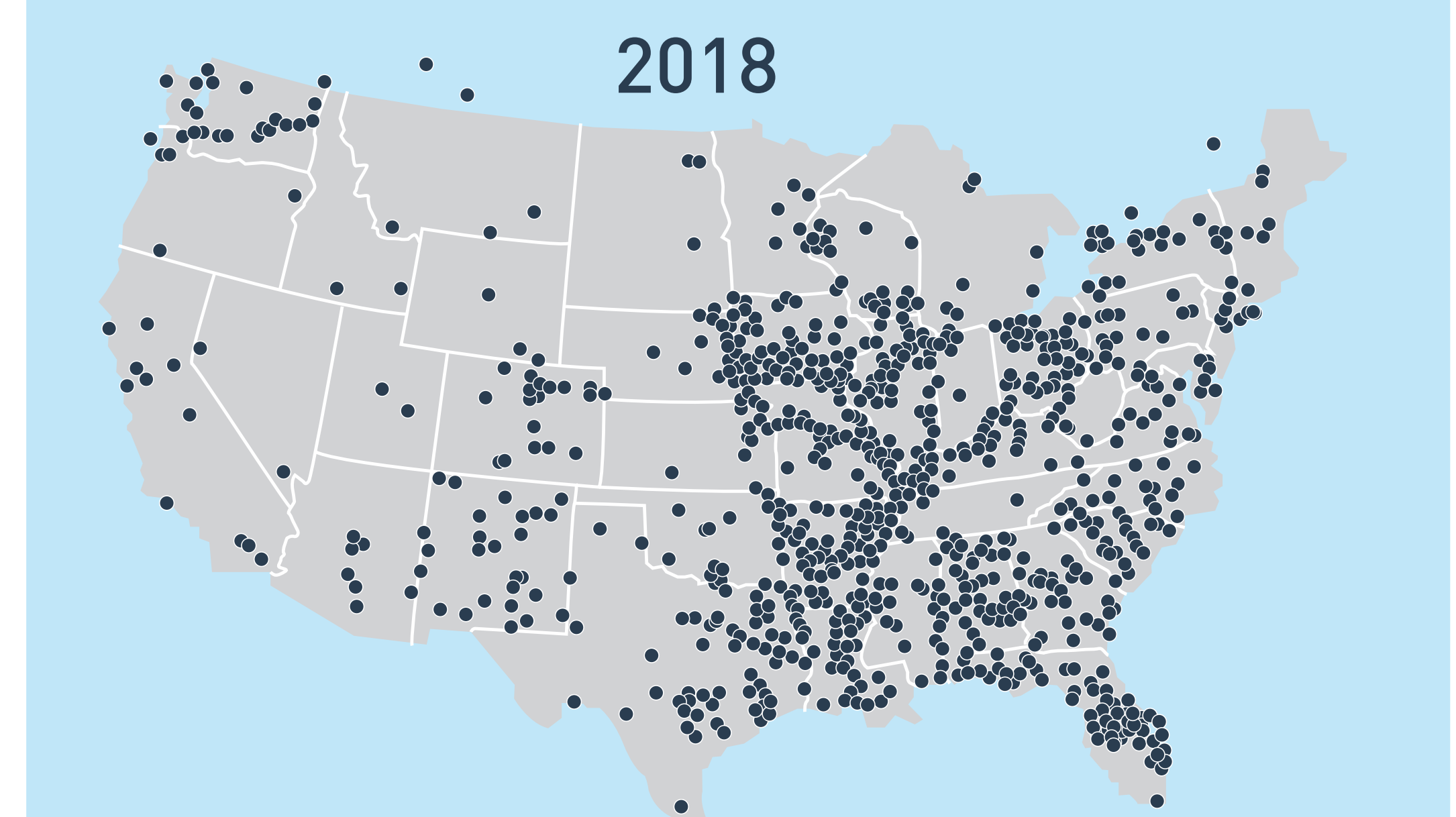
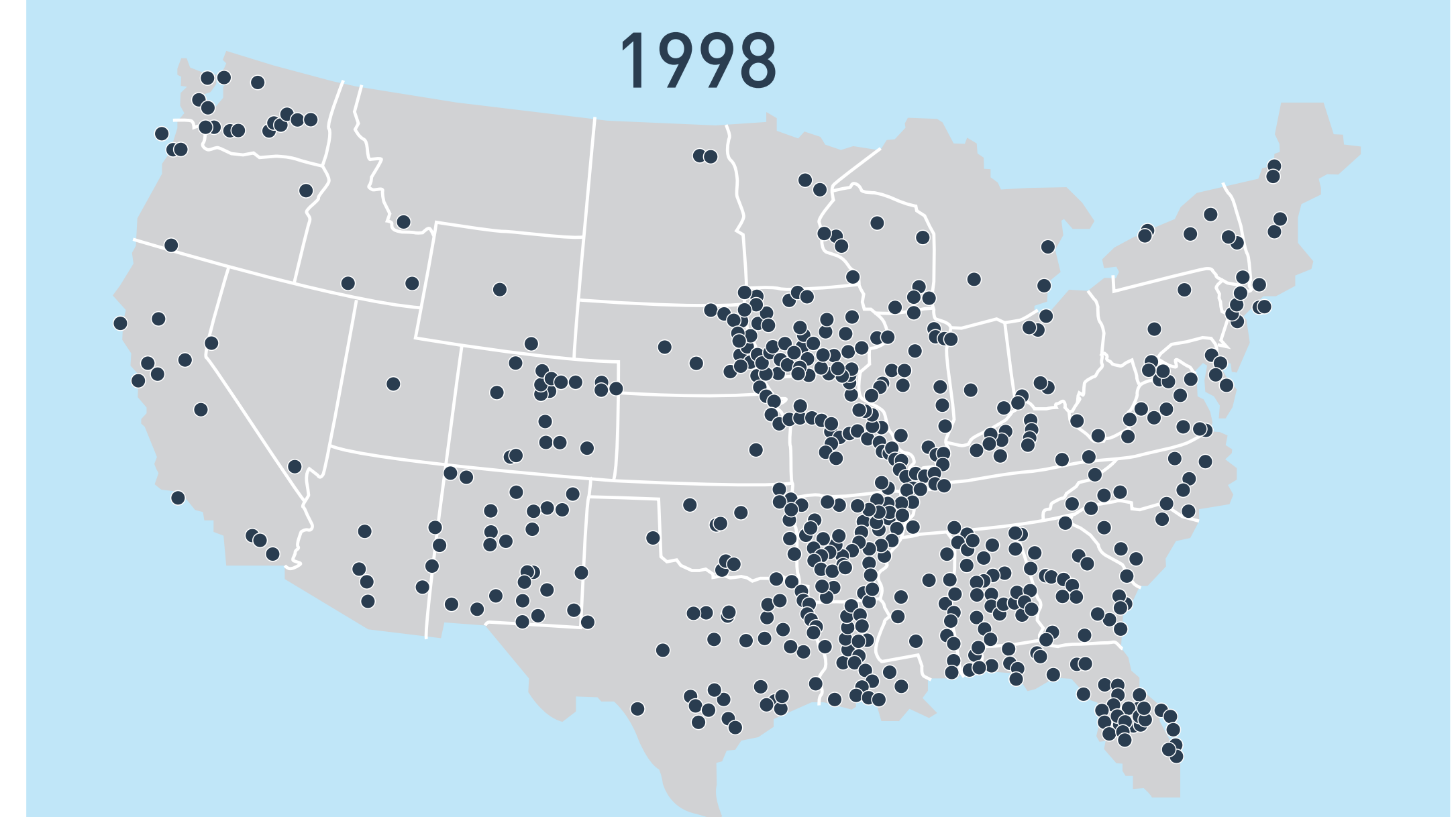
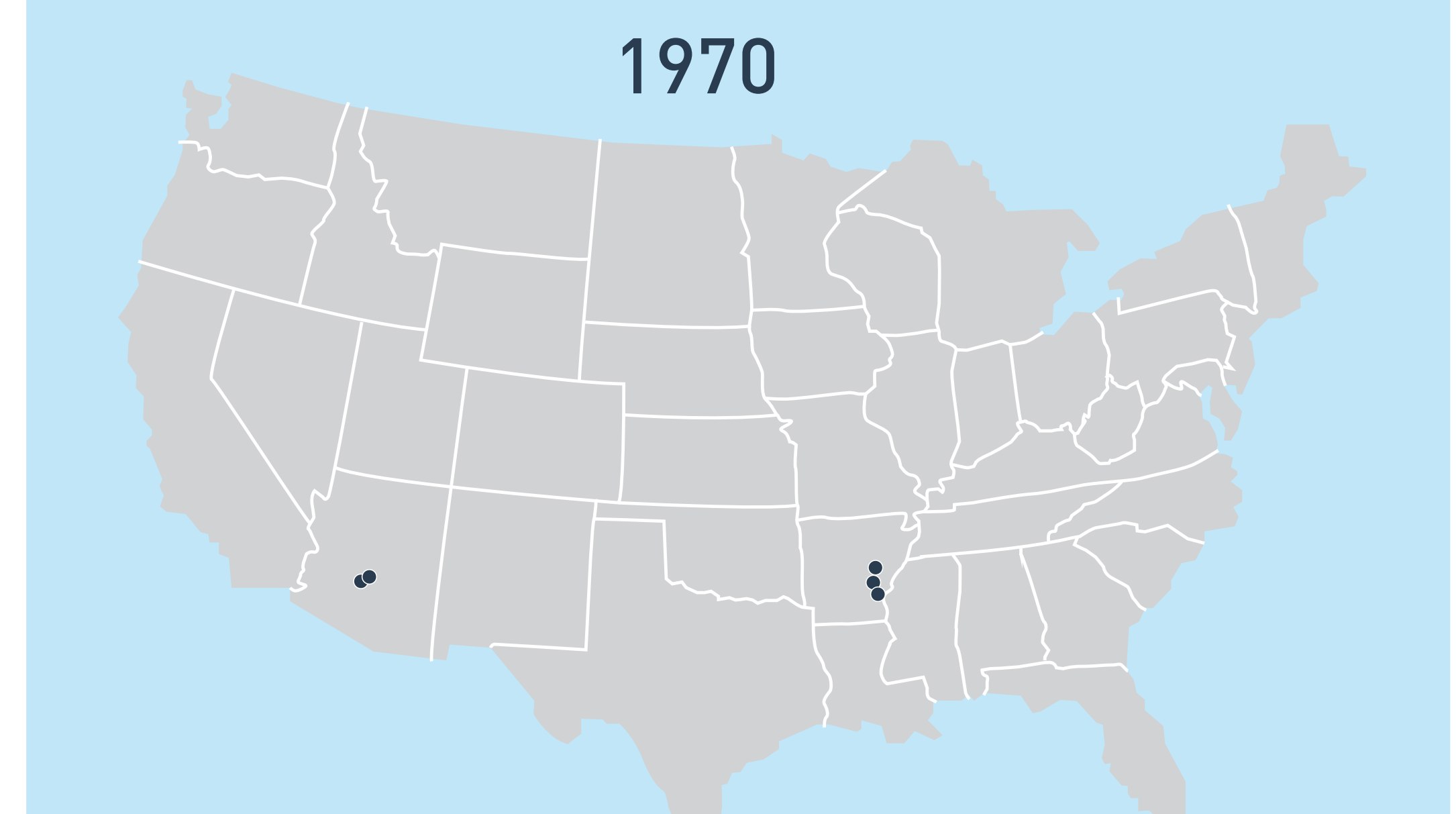
High Alert Areas

Since 1985, Grass Carp have been captured in the waters or tributaries of Lake Huron, Lake Ontario, and Lake Erie. Most tested were found to be sterile, and were likely escapees from areas where sterile populations were being used for aquatic plant control. The maps below show High Alert Areas in relation to major urban cities, as well as Indigenous communities.



Spread of Grass Carp

Grass Carp have spread across the United States since 1968 but has not yet established in the Canadian waters of the Great Lakes basin. The most likely entry point is via connected waterbodies in Ohio where Grass Carp are present, into Lake Erie. Spread will be more rapid for lakes Michigan, Huron, and Erie, and potentially Lake Superior; longer for Lake Ontario.



<https://www.usgs.gov/>

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Program Pillar #1

PREVENTION
Prevent the threat from entering Canadian waters through public outreach, education, and awareness.

Whether you are harvesting fishes, traditional medicines or foodstuffs, walking along the shore or kayaking, you can help us spot a Grass Carp.

Do not dispose of baitfishes back in to water, dispose it 3m away from the shore

Program Pillar #2

EARLY WARNING
Detect the threat early through surveillance alongside partners and the efforts of key organizers.

DOCUMENT
Do not throw back

REPORT
Call Invasive Species Hotline: 1-800-563-7711 or go to: eddmaps.org/ontario

PRESERVE
Double bag fish in plastic bags. Put on ice but do not freeze. We will arrange to pick it up

If you suspect you found a Grass Carp, follow the three steps above to ensure the Asian Carp Program is notified and appropriate action can be taken.

Program Pillar #3

RESPONSE
Ensure a unified and coordinated team can respond to incidents.

Following a verified sighting or capture, the following response takes place. The Asian Carp Program **always** responds!

If required, boats are deployed. The reported areas are sampled exhaustively

Any Grass Carp caught are removed immediately

Incident Commander decides if multiple agencies are needed

We conduct analysis during all steps

The Program stops when the threat is alleviated

Program Pillar #4

MANAGEMENT
Ensure policies, regulation and protocols are in place to minimize the threat of entry of Asian carps in Canadian waters.

It is illegal to import, possess, transport, or release Asian carps in Canada.

The Program is involved with development, implementation and enforcement of the regulations

SCIENCE: Research informs every aspect of the program.

References
Ecological Risk Assessment of Grass Carp for the Great Lakes Basin
Socio-Economic Impact of the Presence of Asian Carp in the Great Lakes Basin

Suspect a fish is a Grass Carp? Report at eddmaps.org/ontario or call the Invasive Species Hotline 1-800-563-7711

Megamap™ by OCAD University Resilience Design Lab at OCAD University

Fisheries and Oceans Canada Pêches et Océans Canada

Canada